

Analysis audit data using digital technology and the risks of its application**A case study of an audit company PriceWaterhouseCoopers**

تحليل بيانات المراجعة باستخدام التكنولوجيا الرقمية ومخاطر تطبيقها دراسة حالة شركة تدقيق

PriceWaterhouseCoopers**BOUGHAZELA HAMAD Hamza ¹, OULD BAHAMMOU Samir ²**¹ University of Ahmed DRAIA - Adrar (Algeria), bou.hamza@univ-adrar.edu.dz² University of Ahmed DRAIA - Adrar (Algeria), samirouldbahammou@univ-adrar.edu.dz**Received:** 15/01/2024**Accepted:** 30/03/2024**Published:** 31/03/2024**Abstract:**

This study sheds light on the analysis of the audit data using the digital technology, and on the related risks. In so doing, we aim at answering the problematic that says, “How to use digital technology in analyzing the audit data?” We relied on the descriptive and deductive methods. Findings show that the company has a set of digital techniques to analyze the audit data, namely the collection, analysis, and testing of the data without need to limited sample as in the past. Besides, the customers and the audit teams can track the situation individually through the specialized dashboard, analyze billions of data in seconds, use the Optical Character Recognition OCR, extract entities such as names or terms of the invoice using the Neuro Linguistic Processing NLP, save all the transactions that take place inside the net, and check any transaction between two devices.

Keywords: audit data analysis, digital technology; digital technology techniques

ملخص:

تهدف هذه الدراسة إلى تسليط الضوء على موضوع تحليل بيانات المراجعة باستخدام التكنولوجيا الرقمية ومخاطر تطبيقها، محاولين في تلك الإجابة على الإشكالية التالية: كيفية استخدام التكنولوجيا الرقمية في تحليل بيانات المراجعة؟ وهذا اعتماد على المنهج الوصفي والمنهج الاستقرائي، واستنادا إلى النتائج المتوصل إليها خلصت الدراسة أن الشركة لديها مجموع من التقنيات التكنولوجية الرقمية لتحليل بيانات المراجعة، تتمثل في جمع وتحليل واختبار البيانات بشكل كامل، دون الحاجة إلى الاعتماد على عينات محدودة كما كان سابقا، يمكن للعملاء وفرق المراجعة تتبع الحالة على المستوى الفردي من خلال لوحة القيادة المخصصة، تحليل مليارات نقاط البيانات في أجزاء من الثانية واستخدام التعرف الضوئي على الأحرف (OCR)، واستخراج كيانات مثل الأسماء أو مصطلحات الفاتورة أو العناوين باستخدام معالجة اللغة الطبيعية (NLP)، حفظ جميع المعاملات التي تتم داخل الشبكة، وكل معاملة تتم بين جهازين يجب التحقق منها، والتأكد من صحتها.

كلمات مفتاحية: تحليل بيانات المراجعة، التكنولوجيا الرقمية، التقنيات التكنولوجية الرقمية

INTRODUCTION:

The digital transformation is necessary for all the world companies as it has big effects on the audit. Thus, this transformation is a real revolution as it paves the way for auditing the information work system. Besides, the audit itself is subject to main changes thanks to the digital technology that facilitates merging huge amounts of structured and unstructured data to understand the continuous performance of the companies. Thus, the 04 big audit companies recognized the big potentials of the digitalization and information technology in their field. Therefore, tremendous investments were launched in the technological innovation.

Many researchers believe that the profession of audit shall change with the techniques of digital technology and the data analysis that allow neutral fast error-free processing in various fields. Thus, the probability of machine learning providing accountants and auditors with quality data analysis is high. In this study, we shall determine the ways of analyzing the audit data using the digital technology, and of using techniques of collecting, analyzing, and testing data without relying on limited samples. In addition, we shall focus on automatic analysis and correction of errors in big data amounts. In this line, the customers and the audit teams can individually track the state through the PWC dashboard.

Based on what has been said, the problematic of the study can be stated as follows: “how to use digital technology in analyzing the audit data?”. In this context, sub-questions arise as such:

- What is the nature of the audit and the digital technology?
- How to apply the digital technology in PWC Company?
- To what extent does the use of the digital technology affect the procession of the audit data?

Hypothesis of the study:

- The use of the digital technology in analyzing the audit data leads to the success and improvement of the audit quality.

Importance of the study:

The importance of the study lies within the fact that it tackles one of the modern topics that adds a value to the field of audit and digital technology. The latter provides efficient visions to the users of the financial data. Therefore, big audit companies invest huge sums of money to finance the audit process and achieve a competitive advantage in the international audit market.

Aims of the study:

- Findings the advantages and importance of using technology in the audit.
- Knowing the main concepts related to the audit and the digital technology.
- Being able to process huge amounts of data.
- Knowing the digital technology in analyzing data.

Methodology of the study:

In order to cover the topic and answer the questions, we relied on the descriptive and deductive methods that rely on information drawn directly from the previous studies, periodicals, and websites. Thus, we present various definitions such as the concept of the digital technology, the audit, and the analysis of the audit data using digital technology.

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Structure of the study:

To thoroughly cover the topic, we tackled the concepts of the digital technology, the audit data analysis, the risks of applying it, and the techniques used in Price Waterhouse Coopers.

1. The theoretical frame:

In the light of the continuous technological development, we witnessed radical changes in the audit process through fast free-error neutral analysis of data in various fields. Thus, the study identifies how to analyze the audit data using the digital technology, and how to use the techniques that collect, analyze, and test data without reliance on limited samples.

1.1 The audit profession (Kadiri, 2023):

1.1.1 Definition of the audit profession:

It is examining the financial statements of the organization by an independent person who does not belong to the company. It covers the financial report of the general budget, the income statement, the statement of changes in the equity rights, the statement of the monetary flows, the clarifications that include the summary of the important accounting policies, and the other interpreting clarifications.

1.1.2 The aims of the audit:

The general aims of the audit are:

- Making sure that the obtained results agree with the expected ones.
- Making sure of following the measures.
- Revealing the potential deficits and their causes.
- Shedding light on the necessary improvements.
- Understanding and analyzing a specific accident, gap, or functional issue.

The specific aims of the audit are:

- Banning fraud and embezzlement.

The specific aims of the organizational audit are:

- Evaluating the respect of the measures.
- Evaluating the quality of the provided service.
- Evaluating the level of the good rule of the structure.

1.2 The digital technology (PricewaterhouseCoopers, What's the real value of AI for your business and how can you capitalise?, 2023):

The applications of the digital technology cover many fields such as accountancy, medicine, industry, agriculture, electronic trade, leisure, teaching, etc. It is used to improve the efficiency, exactness, performance, and costs in these fields.

1.2.1 Definition of the digital technology:

In its broader meaning, the digital technology is a term that encompasses the computer systems that can sense our environment and think, learn, and take decisions in response to what it feels. Its goals cover the digital technology forms used today, the digital assistants, the chat robots, and machine learning. It works through 04 methods:

- Automatic intelligence: it finishes the manual/ cognitive and routine/ non-routine tasks.
- Assistant intelligence: it helps people perform their tasks fast and better.

- Supported intelligence: it helps people take better decisions.
- Self-intelligence: it automates the decision taking processes without a human intervention.

The probability of transformation shall be great thanks to the tight cooperation between the humans and machines, and the digital technological innovations.

1.2.2 Branches of the digital technology (Boubaya, 2023):

There is a wide set of techniques that make the branches of the digital technology. We shall shed light on the main 06 branches.

- Expert systems:

They are systems that depend on technology. They learn and imitate the human ability of taking decisions. In other words, the expert system is a computer system that simulates the intelligence of the human expert who takes decisions. These systems use the logical symbols rather than the traditional programming to solve problems. In addition, they are mainly used in the medical field to exploit the medical facilities and discover the viruses. Besides, they are used in the banking sector to analyze the loans and investments.

- The robotics:

It is a very interesting field of the digital technology as it focuses on designing and developing the robots. The robotics deals with designing, building, and operating the robots through integrating the techniques of sciences and engineering. It aims at helping people in their hard and giant tasks such as managing the computer systems, transforming the information, and manufacturing cars. For instance, NASA uses it to move the heavy bodies in the space. It is a scientific and engineering field with multi disciplines such as mechanic engineering, electrical engineering, computer science, and other disciplines.

- Machine learning:

It is an important field of the digital technology as it allows the machines and the computer systems to process, analyze, and interpret data to provide solutions to the real life challenges. This means that the computer systems can learn and take decisions automatically thanks to the sufficient data provided through the machine learning. Thus, it is a method that grants the computer systems the ability to learn without being programmed.

-Neural Network:

It is the field that uses the neurology (part of the biology that focuses on the nervous system and the human brain). The Neural network imitates the human mind that has infinite number of neural cells. It decodes the neural cells in the brain of the system.

-Fuzzy Logic:

This field is a technique that modifies and represents uncertain data through analyzing the degree of the hypothesis validity. It helps provide a certain level of the logical flexibility when facing situations of uncertainty. In the real world, we sometimes face situations where we cannot know whether the condition is true. Thus, the Fuzzy Logic grants the suitable flexibility for the thinking that leads to the uncertainty and doubts.

- Natural Language Processing:

It is a field of the technology that helps communication between the computer and the human using natural language. The communication with a person who does not understand your language may be difficult. The same applies to the computer, as it shall find difficulties

understanding the words because it understands only the dual digits. Therefore, the Natural Language processing emerged as a solution.

3.1 The measures of auditing and analyzing data using the digital technology (Asif Qayyum, 2023, pp. 16-28):

3.1.1 The audit procedures:

This phase determines the opportunities of enhancing the quality or efficiency, and the challenges and considerations of executing the analysis in each phase of the audit process. It goes through various stages as follows:

The required activities- planning the audit:

(Accepting/maintaining the relation with the customer, the range of the audit, risk evaluation, understanding the entity, evaluating the importance level, automation, and analysis).

- Planning opportunities.

*** Importance and extent:**

We can use the processes automation and the analyses to extract data from the previous phases, or the temporary financial data to determine the suggested level of the relative importance based on a standard range. We can use the same method to determine the relative importance in a continuous audit or in real time. Besides, it is possible to use the processes automation and analysis to reveal unnatural transactions or the aspects that deviate from the normal path of the businesses. This helps determine the range and direct the test on the accounts or coefficients that may raise a bigger risk for falsification.

*** Risk evaluation:**

We can use processes automation and analysis to reveal unnatural transactions or the aspects that deviate from the normal path of the businesses. This helps determine the range and direct the test on the accounts or coefficients that may raise a bigger risk for falsification. Besides, we can use the robotic processes automation to get the information from the databases that are based on internet subscription, and from the published information sources as part of the model planning cycle.

*** The opportunities of planning and understanding the entity and risk evaluation:**

The techniques of processing the natural language allow the digital technology tool to examine the general and non-general information obtained from the techniques of robotic processes automation using the Natural Language Processing techniques. Thus, the auditor may survey the annual report of the entity, the organizational deposits, the texts of the investor phone, the websites, the foundation memoranda, and the meetings proceeds to get a coherent summary about the company, its topic, and its risks.

- The work of the audit:

It is based on testing the conditions and the objective procedures, including detailed tests, objective analytical procedures, collecting the evidences, examining the deficits, and identifying the need to get additional evidences.

*** Opportunities of automating the audit works:**

- Procedures of the automation:

It includes digitalizing the audit sides and achieving the competencies. Thus, the audit robots shall be able to perform recurrent tasks thanks to the automation of the processes. In this line, the audit robots can:

- Copy the data to the various audit files without typing mistakes.
- Making calculations (generally those that require respecting the rules, such as the simple tax calculations) to determine the exactness of the financial data, the consistency, and the links with the sums of the previous practice.
- Rebuilding the financial data from the basic data to formulate independent predictions to the financial data for marketing purposes.

- Testing the criteria:

Because of the possibility of analyzing a set of command elements, we investigated the main elements or the extreme values. The auditor will have to consider the results of the digital technology related to the elements when testing the command elements. The ability to test the main command items raises challenges. Traditionally, testing the criteria was through sampling. In this line, a number of exceptions in the sample led to deducing that the command element was not working effectively. Nevertheless, the use of an acceptable deviation mean may be suitable if the auditor can test all the cases of command of a main command item.

-Deducing information from the internal and external information outlets:

Through ROC, we can use the automation and digital technology in the evidencing process (to settle the bills for instance) using the Photo Recognition of the letters and the Neural Language Processing and Generation as part of automating the processes. The digital technology tool can read and audit the documents of the secondary ledger with the external confirmation (banking confirmation and the debtor confirmation) or other suitable related evidences. The process is simplified when the external confirmations are standard. However, they are more complicated in case of the various confirmations. In this line, surveying the documents and extracting information using some methods mentioned above are the first steps in this process.

*** The final report:**

The point of view and the report (auditing the financial data and disclosures, auditing the core incentives, formulating the deduction, and formulating the audit report).

- The automation, the analyses, and the digital technology –opportunities of making the reports:

- Modifying the planning:

It is necessary to modify some elements of the planning during the audit (such as reconfirming the range and the level of the relative importance and autonomy). The automation and evaluation of the processes and the digital technology allow auditing the issues and focusing on the solutions. This helps shorten the auditing cycle through having an opinion date that is closer to the financial data date.

- Report:

We can automate the necessary communications with the customer to allow the digital technology to extract the information from the file and build participation documents (the report of the auditor and the discourse of representing the administration) based on the content of the audit file. The econometric models are available in the market and for the audit teams. However,

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the human intervention is required to adapt them to the customers. The digital technology may be beneficial to guarantee a standard coordination and make sure that the conclusions reflect the mutual communications.

The digital technology tool may collect and analyze the corrected and uncorrected odd cases and the deficits in the command. For instance, the digital technology can target and collect the recognized modifications and the deficits to determine whether there are common denominators or specific aspects of the audit that require more evaluation. Then, the auditor can audit this evaluation.

3.1.2 Analysis of the data through the digital technology in the audit processes:

The main goal of using the data analyses and the digital technology in the auditing is making the traditional process of auditing more intelligent and effective, and providing visions to the financial data users. Therefore, the audit companies invest big amounts of money in such initiatives.

3.2.2.1 The digital technology used for audit data analysis in Price Waterhouse Coopers PWC:

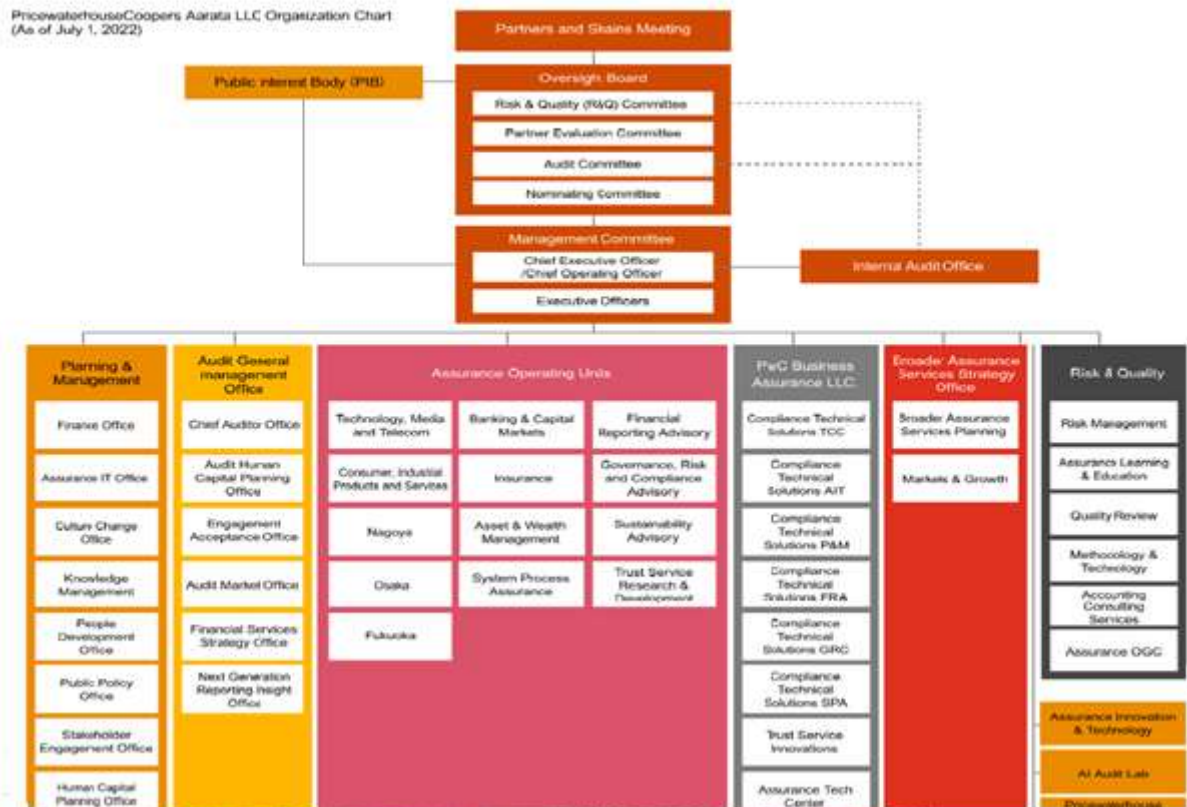
PWC integrated the digital technology in its audit and paved the way for the discovery of the digital technology. It includes an audit to the work of the digital technology, the objective test, and the generation of the work papers; supported by the cognitive process of the auditing. The contradiction between the audit competency and the audit risks is alleviated. It allows making a comprehensive and detailed analysis in a brief period and finding audit evidences that can be examined only by hand. The time limits may reach a 100% coverage. This reduces the audit risks and improves the quality of the audit reports.

3.1.2.2 Introduction about PWC (Intelligence, 2023):

It is a multinational company that ranks the 2nd professional company worldwide and the 4th biggest audit company after Deloitte, EY, and KPMG. It exists in 157 states on 742 spots and employees 327947 individuals. In 2022, 26% of the labor force was in the two Americas, 26% in Asia, 32% in Europe, and 5% in the Middle East and Africa. Its international revenues reached 50.3 billion USD in 2022, of which 18.1 billion USD was from the assurance practice, 11.5 billion USD from the taxes practice, and 20.71 billion USD from the counselling practice. It was established after a union between the Price Waterhouse Company and Coopers & Lybrand in September 2010. It is situated in London and is a coordinated entity of an international net of companies. It manages the brand and develops the policies and initiatives to establish a common and coordinated method in the risks, the quality, and the strategy.

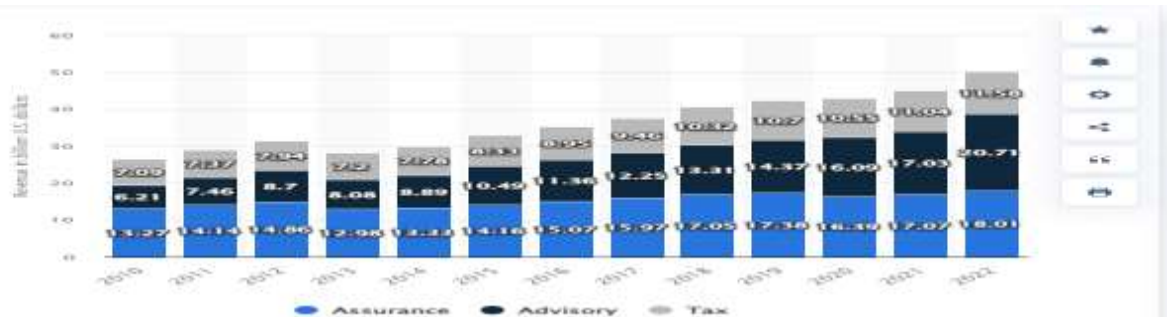
3.1.2.3 Its hierarchy:

Figure 01: organization structure



Source : <https://www.pwc.com/jp/en/about/member/assurance/organization.html>

Figure 02: Total revenues of PwC from 2010 to 2022
(PricewaterhouseCoopers, Aggregated revenue of PwC, 2023)



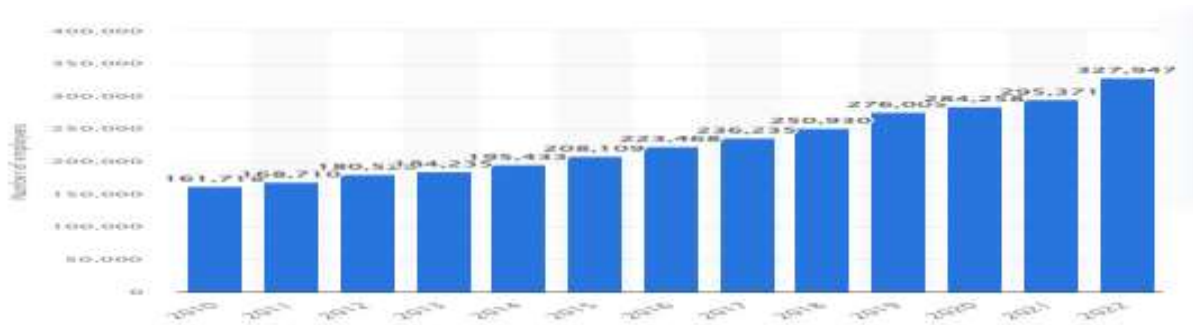
Source : <https://www.statista.com/statistics/189612/aggregated-revenues-of-pwc-by-service-2010/>

The figure shows the total revenues of PwC between 2010 and 2022. The revenues come from a growth in all its main services in 2022, and the annual revenues exceed 50 billion USD for the first time. The Company achieved about 18 billion USD from the assurance services, as it increased with 3 billion USD between 2021 and 2022. This rise shall make the company maintain its position as one of the big 04 companies of accountancy worldwide.

Figure 03: Number of employees in PwC worldwide
(PricewaterhouseCoopers, Aggregated revenue of PwC, 2023)

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Source : <https://www.statista.com/statistics/189612/aggregated-revenues-of-pwc-by-service-2010/>

The figure shows the labor force of PWC. It increased from 161.718 in 2010 to about 328000 in 2022. It is one of the big professional service providers worldwide. It is specialized in the audit and accountancy. Its services include the assurance to deal mainly with the financial audit processes, the counselling to provide wider administrative services, and the taxes to deal with the taxation counselling services. The biggest share of the revenue is in the two Americas. In the same line, it has employees in Europe, the Middle East, and Africa.

3.1.2.4 Services (Mathias Hove Zimmer, 2023, p. 85):

In the audit and confirmation, PWC helps the customers in 06 fields:

1. Auditing the financial data: it provides solutions to audit the financial lists accounts. It uses experience to improve the audit and provide competency and value to the customers.
2. Audit in other fields rather than the financial field: It provides audit in other fields when there is a need for the data of the auditor.
3. The simplified audit of the periodical financial data: it aims at increasing trust temporarily in the financial lists.
4. The agreed upon audits: The experience of the counsellors may lead to detailed audits of the inputs of the ledger.
5. Transformation and adaptation with the changes in the regulations: The shift to IFRS is generally costly, affects many measures and systems, and increases the need for the competency of the company.
6. Assistance in the direct and indirect taxes, accountancy, and the financial management: the audit will be an experienced partner with a deep knowledge about the customer and the company.

3.1.2.5 The contracting companies with PWC

Sparebanken Sør	Insurance (Europe)	Krigsforsikring	Aega ASA
Sparebank 1 Østfold	As GC Rieber	Gjensidig	Assuranceforeninge
Akershus Sparebank 1	Shipping ASA GIEK	forening Digiplex	n Gard Austevoll
Østlandet Sparebanken	Kredittforsikring AS	Fet AS	Seafood ASA
Sør Boligkreditt AS	Glitre Energi AS	DIGIPLEX	Avance Gas
Spareskillingsbanken	Grieg Seafood ASA	NORWAY AS	Holding Ltd Bank
SR-Boligkreditt AS	Golden Ocean Group	DOF ASA DOF	Norwegian AS
Søgne og Greipstad	Limited Goodtech	SUBSEA AS	Beerenberg Holdco

Sparebank The North Alliance AS Trøgstad Sparebank Trønderenergi AS VV Holding AS Wallenius Wilhelmsen Logistics ASA Wilh. Wilhelmsen Holding ASA Pensjonsforsikring AS Pareto Bank ASA Protector Forsikring ASA Reach Subsea ASA Siem Offshore Inc. Santander Consumer Bank AS Selvaag Bolig ASA Sevan Drilling Limited Siem Industries Inc. Solvang ASA Skadeforsikringsselska pet Borettslagenes Sikringsordning AS XXL ASA Skogbrand Forsikringsselskap Gjensidig Skue Sparebank Treasure ASA Sparebank 1 Nordvest Sparebank 1 SR-Bank ASA	ASA Hafslund ASA Havtrygd Gjensidig Forsikring Hegra Sparebank Helgeland Boligkreditt AS Helgeland Sparebank Help Forsikring AS INSR Insurance Group ASA Forsikringsselskap Komplett Bank ASA Landbruksforsikring AS Landkreditt Bank AS Landkreditt Boligkreditt Landkreditt Finans AS Lerøy Seafood Group ASA Lillesands Sparebank Lillestrøm Sparebank Livsforsikringsselska pet Nordea Liv Norge AS Lock AS Luster Sparebank Melhus Sparebank Monobank ASA Møretrygd Gjensidig Forsikring MyBank ASA NBBL	Ekornes ASA Eksportfinans ASA Flekkefjord Sparebank Folkefinans AS Fornebu Sparebank Fredrikstad Energi AS Frende Livsforsikring AS Frende Skadeforsikring Interoil Exploration and Production ASA Jernbaneparsonale ts Sparebank Jernbanepersonale ts Forsikring Gjensidig Kid ASA Kitron ASA KLP Banken AS KLP Bedriftspensjon AS KLP Boligkreditt AS KLP Kommunekreditt AS KLP Skadeforsikring AS Kommunal Landspensjonskas se Gjensidig Assuranseforenin g Norwegian Property ASA OBOS Boligkreditt OBOS Forsikring AS	II AS Brage Finans AS Bud og Hustad Forsikring Gjensidig Byggma ASA Den Norske AS Frontline Ltd. Gard Marine & Energy Indre Sogn Sparebank I.M. Skaugen SE Fulltegningsforsikri ng AS Njord Gas Infrastructure Nordea Eiendoms kreditt AS Norges Pelsdyrslag Gjensidige Pelsdyrtrygd Norsk Legemiddelforsikrin g AS North Energy ASA Norway Royal Salmon ASA Norwegian Finans Holding ASA Norwegian Hull Club - Gjensidig OBOS-Banken AS Odal Sparebank Odfjell Drilling Ltd Orkdal Sparebank Oslo Forsikring AS Oslo
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(Mathias Hove Zimmer, A comparison of the Big Four Professional Service Firms, 2023, p. 93)

3.1.2.6 The method of using the digital technology to analyze the data in the audit process by PWC (Bowker, 2023, pp. 7-12):

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*** Types of the digital technology used in the data analysis:**

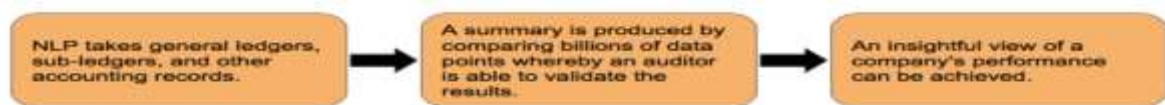
From the analysis of data and research engines, we found the following components of the digital technology:

1. Neural Language processing.
2. Neuro Language Generation.
3. Machine Learning.

NPL:

It analyses the neural linguistic programming, translates the organized data, and uses a human in the cycle to check the validity of the results. It can be used as follows (Lord, 2017):

Figure 04: analyses the neural linguistic programming



Source: Investigating the Potential Impact of Data + Analytics on PwC

NLG:

It takes the technology used in NLP a step forwards. It can collaborate with AI and ML to produce unbiased, exact, and balanced documents with high speeds (Zhou, 2017). It can be applied on the reports of the company during the audit to analyze the emails and discover any illegal activity.

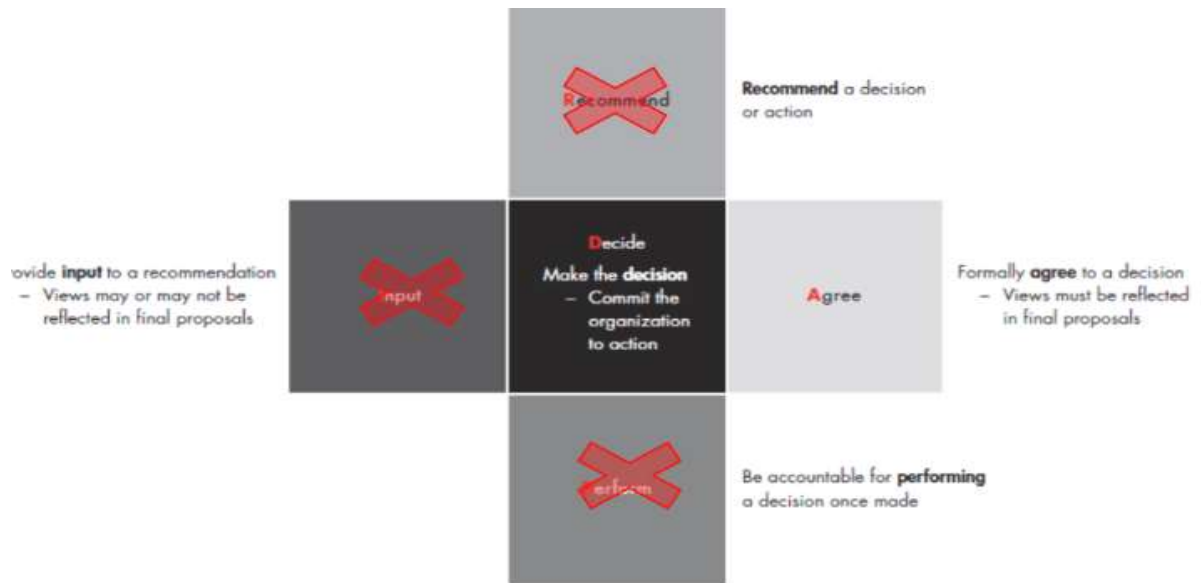
NLP and NLG quantitatively:

The machine may survey a contract of 100 pages in seconds compared to the human auditor who takes 04 hours at least (Lord, 2017). For instance, when a company deals with the companies of integration, the team needs to examine hundreds of thousands of lines of disunified payment accounts and the receipt accounts statements. This was very hard that the companies did not use to do that until the end of the transaction. However, nowadays, the digital technology reduces the work of 4-5 months to a week. Thus, it saves 95% of the time (Zhou, 2017).

NLP and NLG in decision-making:

They can help in various aspects of decision taking. From the models established by Bain & company:

Figure 05: These technologies can help with different aspects of the decision making process



Source: Investigating the Potential Impact of Data + Analytics on PwC

Figure 06: These models illustrate that AI will be able to augment human auditors abilities



Source: Investigating the Potential Impact of Data + Analytics on PwC

These models show that the digital technology will be able to increase the abilities of the human auditors, input and provide reliable information, and recommend the choices of the human auditors to be taken for the achievement of bigger and more exact processes.

Machine Learning ML:

It is one of the digital technology applications that provides the systems with the ability to automatically learn and improve from the experience without being programed. Most of the techniques of the digital technology are considered "a narrow artificial intelligence". This means that they are predictive and can analyze big sets of data and provide recommendations. In the future, experts hope to get a ML that equals the minds, thinks, and shows the emotional intelligence.

Case study of the audit and the improvement of the Machine Learning (Lord, 2017):

1. The machine searches on the web and collects a set of peer companies to the company "a". The machine calculates and draws a series of financial percentages for the company "a" and the peer company.

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2. The machine is programed in prior to determine the unordinary trends. Thus, if it finds an odd case, it shares the information with the audit team that can determine whether it is odd or not, and the cause.

3. The decisions of the team are shared with the machine that shall be able to respond to similar relations in the future and improve in discovering the unordinary patters and fraud.

From the examination of many other reports about D+ A, it is possible to determine the potential effect of the ML. It is probable that 30% of the time spent in the activities shall be automated if the deep learning improves (McKinsey & Company, 2017). This amounts up to a difference of 5 to 3.5 days per week.

3.1.2.7 The techniques of the digital technology applied in the audit process of PWC (PricewaterhouseCoopers, Technology in the pwc audit driving innovation, 2023):

Halo: it is a platform for auditing the data. It can analyze statements and trends such as the main financial indexes and the current percentage. It allows analyzing and storing data so that the customers can have access to them individually. This reduces the costs with 20%. Halo works to improve the test quality because it enables the reviewers of collecting, analyzing, and testing data instead of relying on limited data as in the past. It checks millions of inputs in one time and puts a cross on any exceptions in the 1st phase.

Aura: It is the international audit platform used to find errors in the financial documents of the customers. The documents are restored and a new project is launched. Aura checks every element in the financial statement and determines the errors. Then, it shows the level of importance and the evidences. Finally, the analysts can audit and correct the errors after evaluating and correcting the conditions. Besides, Aura automatically determines the errors from big amounts of data. Thus, it saves time and costs because the analysts do not need to read all the documents. In this line, PWC can hire less analysts. Moreover, the analysts can interact with the directors and the customers. On the other hand, the directors can provide audit advise and the customers can submit new orders at any time via Aura. This improves the quality of the services and the experience of the customers.

Connect: It is an international cooperation tool that allows the safe sharing of the audit documents between the audit teams and the customers. Besides, the audit teams can track the situation individually through a specialized dashboard that allows managing who can access and download the documents. The audit teams of PWC do not need to repeatedly remind the customers about the deadlines because the customers can check the timetable of their commitments. In addition, the users are allowed to examine the processes easily anywhere at any time, unlike the traditional audit where the auditors had to send big files via email and track them manually. Nowadays, they can send and share the documents with their customers easily using Connect. This increases the quality and efficiency of the work (Bowker, 2023, p. 10)

Gl.ai: It is a revolutionary robot that uses the digital technology and ML in the commercial tasks and the analysis of billions of data in seconds. Besides, it sees what the humans cannot and applies rules to discover the odd cases in the general ledger. Furthermore, it examines huge amounts of data such as the transactions, the users, the amounts, and the accounts in each transaction to determine the potential errors and fraud without bias. The typical units are developed to improve the quality of the audit and the customer service.

(Sawant, 2023, p. 03)

GL.ai: It uses the digital technology and ML to download, scan, and analyze the documents, transactions, and data to find the odd cases that indicate an error or a potential fraud. Besides, it improves the quality of the audit and supports the customer service. The GL.ai algorithms that have been trained by experts determine the unordinary coefficients rapidly and exactly. Besides, the perceptions provide understanding of each specific issue. This guarantees that each customer and auditor understands the problem and can solve it efficiently (Boubaya, Current and Future Applications of Artificial Intelligence Techniques A Case Study of the Big Four Audit Firms, 2023, p. 10).

GL.ai: it is a progressive robot that uses the digital technology accounts to consider big scales of data such as the movable transactions, the customers, the sums, and the registers to recognize the potential errors and bias (PricewaterhouseCoopers, Aggregated revenue of PwC, 2023).

Cash.ai: it is a device that uses computed thinking and the measures of the digital technology to direct the automatic financial audit through analyzing the processes of funds, banking settlements, the confirmation discourses, the unordinary trade, and the monetary state of the bank (Abcdefghijklm, 2023).

Cash.ai: The monetary audit is important and includes big amount of manual tasks that take long time. Therefore, PWC uses the monetary digital technology to make a comprehensive audit and cover many aspects such as the banking settlements, the confirmation discourses, the exchange rate, and the financial position. It is a robot that uses the digital technology and the machine learning in the X-rays for the commercial activities and figuring the odd cases in the general ledger. (Tucci, 2023). It rapidly and exactly executes the tasks that the auditors make. It takes the level and quality of the audit into a new stage through unifying the method and the intelligent automation. Besides, the digital technology allows developing algorithms fast and exactly. Besides, Cash.ai allows publication widely without the need to many data experts (PricewaterhouseCoopers, Aggregated revenue of PwC, 2023).

RPA: It is a technique that simulates the way the humans interact with the programs to perform big and recurrent tasks. It establishes programs or robots that can log in the programs and transfer the ledger and the percentage accounts. Besides, it can perform the routine activities daily without limitation and human intervention. In addition, it inputs data, counts the tasks, and copies data between the applications. In this line, it reduces the costs, simplifies the processing, and improves the experiences of the customers. Furthermore, the works units can execute the program without the need to new learning tools, the demand of support, or change of the infrastructure of the information technology in the company. **(raouan thair)**

Blockchain: It is a technique of the ledgers provided by the blockchain that can confirm the transactions without a reliable third party. It has big potentials. Despite it is usually related to the encrypted currencies, the companies try the use of the technology for the monetary settlement, the smart contracts, the supply chain, the sources, and the other applications. It is a set of information that is made up of a set of devices or a cluster. Each device represents a dataset or a ledger that provides the possibility of checking the transactions through a shared dataset that works in a peer-to-peer net. Each transaction between two devices is examined and validated by the other devices of the net. It stores the information in blocks related in a temporal sequence to form a chain. **(haouam)**

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The risks of applying the digital technology (Hasan, 2023, p. 15):

The digital technology manifests in a routine manner with the technological advance and the software providers who build and integrate the digital technology in the companies. It is expected that the world shall witness an increase of 15.7 trillion USD in 2030 in the GDP thanks to the digital technology. The digital technology applications keep growing in the companies and industries. Nevertheless, with the increase of the benefits of the digital technology, the risks increase as well. In this line, what are these risks? Do they exceed the benefits? The following points provide an answer:

- The algorithms of the digital technology contain data about the stocks and the preferences of the human inputs and shall learn our bias.
- It shall be difficult to control the applications in case of a technical issue due to their complexity.
- The rise of unemployment.
- The digital technology can be manipulated to make wrong predictions or refuse the customer service. Therefore, the applications need stronger protection.
- The applications may increase the data and privacy risks. The big language models use big amounts of data and create more new data that are subject to bias, weak quality, unauthorized access, and loss.
- The employees' input of sensitive data in the general models of the digital technology is a real issue for some companies that may store the data and use them to train other models that may contradict with the privacy lists that limit the secondary uses of the personal data.
- The inexact audit of the outputs of the digital technology leads to violations of the contract, the property rights, and to defamation. Therefore, the legal forces will need a deep understanding of the issue; something that is very difficult.
- The involuntary errors in the financial lists makes the customers, investors, the organizational bodies, and the stakeholders lose trust, and causes big damages.
- The automation increases the unemployment and the gap in the wealth.

Conclusion:

The problematic of the study revolves around the use of the digital technology in analyzing the audit data, and the related risks in PWC. The study covered the use of the digital technology in the company which affects the audit through the fast analysis of data, reducing the errors, determining the risk early, and creating a competitive advantage.

Presentation of the study results:

In the end, our findings show that:

1. We confirm the hypothesis that revolves around the use of the digital technology in the analysis of the audit data because the company uses the digital technology in analyzing the data.
2. The quality of the choice improves because the auditors can collect, analyze, and test a set of data instead of relying on limited samples as in the past.
3. The quality of the test improves and the customers can access the system data. This reduces the costs with 20%

4. Making the risks of the intelligent evaluation of risks according to specific scenarios, taking into consideration the risk levels and the objective criteria and tests.
5. The customers and the audit teams can track the situation individually through a specialized dashboard that allows the users to command.
6. Making the documents and sharing them easily with the customers to increase the work quality and efficiency.
7. Allowing the users to examine the processes easily during movement anywhere at any time, unlike the traditional audit.
8. Analyzing billions of data in seconds, seeing what the humans cannot see, and implementing the rules to discover the odd cases in the general ledger.
9. Providing a comprehensive audit efficiency to cover many aspects, banking settlements, banking conformations, exchange rate, and the financial position.
10. Applying the rules and dealing with vagueness because the machines work hard in procession, auditing, and testing huge amounts of data.
11. Distributing the tasks of the data processing to various computers, individually or in connection with other computers.
12. The application uses the devotion task to establish specialized audit lists for each company, and allows each team and customer to participate to the disclosure requirements.
13. Calculating the percentages, executing the routine tasks along the week without limitations, and reducing the human participation.
14. Establishing programs and robots that can log in the applications, input data, calculate the tasks, copy the data, and conduct the work as required.
15. The distributed and common ledger provides the documentation and the possibility of checking the transactions through a distributed dataset that works in a peer-to-peer net, where each peer has a full or partial copy of the database.
16. Saving all the transactions that take place inside the net, checking each transaction between two devices, and validating them by the other computers.

Recommendations of the study:

1. Adopting educational university curricula that focus on technology to provide the students with the modern skills of auditing and improve their services. Thus, the new auditors shall successfully face the current and future challenges.
2. Considering the participation of the auditors and consulting them in developing the electronic techniques used in the audit process. Their views and suggestions must be considered to guarantee the improvement of the techniques and make them more efficient.
3. Continuously developing the techniques used in the audit process to strengthen the competency and exactness of the job, improve the quality of the audit, and increase trust in the results. When using modern techniques to examine the data processing systems, it is possible to analyze data in a more exact manner and deduce reliable result.
4. With the continuous development in technology and the digital transformation, the auditors and accountants must invest in improving their skills and continuously update the knowledge and professional skills. This can help face the modern challenges and achieve excellence in the audit and accounting tasks.

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5. By integrating the information technology as a main axis in the various training events, we can shed light on the challenges and opportunities provided by these techniques in auditing. Besides, these events may help raise awareness and understanding of the professionals about the importance of adopting the modern skills in the profession.

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